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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/636,076	08/06/2003	Chien-Fang Lin	67,200-1112	9840

7590 04/19/2007

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EXAMINER	
CHAWAN, SHEELA C	
ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/636,076	LIN ET AL.	
	Examiner	Art Unit	
	Sheela C. Chawan	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,9,13 and 15-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5,9, 13, 15-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on Jan 23, 2007 has been entered and made of record.

Claims 4, 6-8, 10-12 and 14 are canceled.

New claims added 21-28.

Claims 1-3, 5,9,13,15 – 22 and 24-28, are pending in the application.

Response to Argument

2. Applicant's arguments see page 8, lines 7- 15, of the remarks, filed 1/23/07, with respect to claims 1-13,15-17,19 and 20 have been fully considered and are persuasive. The rejection of claims 1-13,15-17,19 and 20 has been withdrawn.

Applicant's arguments see page 8 of the remarks, filed 1/23/07, with respect to the rejection of claims 1-13,15-17,19 and 20 under 102(e) and103(a) rejection have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Madan et al., (US. 6,258,408 B1).

Claim Objections

3. Claim 15 is objected to because of the following informalities:

Claim 15, line 1, dependencies of claim 15 cannot be on claim 14 because claim 14 is canceled and dependence of claim 15 should be on 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5,9,15-16,19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langley (US. 6,424,733 B2), and further in view of Madan et al., (US. 6,258,408 B1).

As to claim 1, Langley discloses an apparatus for visualization (column 4, lines 10-12) of conditions (column 3, lines 53-56) in the interior (fig 1,14) of at least one process chamber (fig1, 18), comprising (abstract):

Regarding claim 1, Langley discloses methods and apparatus disposed in single and multi-chamber cluster tools for inspecting wafers, wherein an inspection chamber (fig 1, 20) positioned horizontally adjacent, (column 4, lines 53- 65) the at least one process chamber; and

Langley fails to teach a camera provided in said inspection chamber, said camera mounted on a camera support, said cameras support adapted to horizontally bi-directionally move within said inspection chamber to position said camera to view interior of the at least one process chamber.

Madan discloses a substrate cassette for use in a single chamber deposition system for use in an in-line multiple chamber deposition system, and for use in a circular multiple chamber or cluster tool deposition system. The system comprises of:

a camera provided in said inspection chamber, said camera mounted on a camera support, said cameras support adapted to horizontally bi-directionally move within said inspection chamber to position said camera to view interior of the at least one process chamber (column 4, lines 50- 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Langley to include a camera provided in said inspection chamber, said camera mounted on a camera support, said cameras support adapted to horizontally bi-directionally move within said inspection chamber to position said camera to view interior of the at least one process chamber. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Langley by the teaching of Madan in the field of semiconductor manufacturing that

semiconductor material be selectively deposited onto a substrate member. In so doing, it is know that an in-line horizontal, and in-line vertical, or a circular assembly of vacuum deposition chambers may be used wherein the substrate member is sequentially moved from one chamber to another as is needed to achieve a desired sequence of semiconductor layers on the substrate member (as suggested by Madan at column 1, lines 21- 28).

As to claims 2,16 and19 Langley discloses the apparatus of wherein said camera comprises a charge coupled device (fig 1, note the inspection station includes an image detector (camera) for detecting an image of the semiconductor wafer, and a processor for processing the detected image to detect defects in the semiconductor wafer, column 2, lines 48- 51, column 4, lines 7- 10, 29-33).

As to claim 3, Madan discloses the apparatus of claim 1 further comprising a motion actuating mechanism operable engaging said camera support, said actuating mechanism adapted to horizontally bi-directionally movement said camera support in said. Inspection chamber (column 4, lines 50- 64).

As to claims 5 and 15 Langley discloses the apparatus of claim 1 further comprising an electrostatic a catch head carried by said camera, said electrostatic catch head adapted to remove particles from said inspection chamber (note, laser 56 corresponds to electrostatic catch head, column 4, lines 15-24).

As to claims 9 and 20, Langley discloses the apparatus of claim 1 further comprising a recording device operable connected to said camera for recording images

from said camera (note video receiver correspond to camera where information is being recorded regarding the defects, column 4, lines 7-10).

As to claims 21, 24,26 and 28 Langley discloses the apparatus of claim I, wherein said camera comprises a light source (note, light source 56, for example, a white light source may be used to illuminate the surface to be inspected and a receiver, such as a video receiver, receives an image of the surface, column 4, lines 15- 24).

As to claims 22, 23, 25 and 27 Langley discloses the apparatus of claim 1 wherein said camera is a panoramic camera (note, a detector corresponds to camera which is positioned to receive light that is reflected by the semiconductor wafer and a processor is coupled to the image detector for processing the detected image to detect defects, column 2, lines 54- 61).

5. Claim 13, is rejected under 35 U.S.C. 103(a) as being unpatentable over Langley (US. 6,424,733 B2), as applied to claims 1-3,5,9,15-16 and 19-28, above and further in view of Madan et al., (US. 6,258,408 B1).

As to claim 13, Langley discloses methods and apparatus disposed in single and multi-chamber cluster tools for inspecting wafers, wherein an apparatus for visualization (column 4, lines 10-12) of conditions (column 3, lines 53-56) wherein an apparatus for visualization of conditions in multiple process chambers of an integrated cluster tool having a central transfer chamber (column 1, lines 6-8), comprising:

an inspection chamber for positioning adjacent to the transfer chamber (column 3, lines 45- 65, column 4, lines 55- 62, column 5, lines 5- 13); and

a camera assembly having a camera provided in said inspection chamber for viewing of the interior of the process chambers (fig 1, note, the inspection station includes an image detector (camera) for detecting an image of the semiconductor wafer, and a processor for processing the detected image to detect defects in the semiconductor wafer, column 2, lines 48- 51, column 3, lines 45- 65, column 4, lines 7-10, 29-33);

Langley fails to teach wherein said camera assembly comprises an elongated camera support and a motion actuating mechanism operable engaging said camera support for bidirectional movement of said camera support in said inspection chamber and wherein said camera is carried by said camera support.

Madan discloses a substrate cassette for use in a single chamber deposition system for use in an in-line multiple chamber deposition system, and for use in a circular multiple chamber or cluster tool deposition system. The system comprises of:

wherein said camera (note, fig 5, element 87, corresponds to sensor) assembly comprises an elongated camera support and a motion (note, the sensor 87 that responds to any Z-direction movement of the substrate corresponds to motion which is in the X, Y and Z direction) actuating mechanism operably engaging said camera support for bidirectional movement of said camera support in said inspection chamber and wherein said camera is carried by said camera support (column 4, lines 50- 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Langley to include camera assembly comprises an elongated camera support and a motion actuating mechanism operably engaging

said camera support for bidirectional movement of said camera support in said inspection chamber and wherein said camera is carried by said camera support.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Langley by the teaching of Madan in the field of semiconductor manufacturing that semiconductor material be selectively deposited onto a substrate member. In so doing, it is know that an in-line horizontal, and in-line vertical, or a circular assembly of vacuum deposition chambers may be used wherein the substrate member is sequentially moved from one chamber to another as is needed to achieve a desired sequence of semiconductor layers on the substrate member (as suggested by Madan at column 1, lines 21- 28).

6. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langley (US. 6,424,733 B2), as applied to claims 1-3,5,9,13,15-16 and 19-28, above and further in view of Madan et al., (US. 6,258,408 B1).

As to claim 17, Langley discloses methods and apparatus disposed in single and multi-chamber cluster tools for inspecting wafers, wherein an apparatus for visualization of conditions in Multiple process chambers of an integrated cluster tool having a central transfer chamber (column 1, lines 6-8), comprising:

an inspection chamber for positioned adjacent to the transfer chamber (column 3, lines 45-65, column 4, lines 55-62, column 5, lines 5- 13);

a camera assembly having a camera provided in said inspection chamber for viewing of the interior of the process chambers (fig 1, note the inspection station includes an image detector (camera) for detecting an image of the semiconductor wafer,

and a processor for processing the detected image to detect defects in the semiconductor wafer, column 2, lines 48- 51, column 3, lines 45- 65, column 4, lines 7-10, 29-33);

an electrostatic catch head (note, laser 56 corresponds to catch head, column 4, lines 15-24) carried by said camera assembly (column 3, lines 7- 25); and

a voltage source (note, inspection station 34 can also include test equipment 70 in fig 3, for performing electrical function tests (voltage is produced) or inspection equipment 74 for detecting defects formed on the semiconductor wafer 26) operably connected to said catch head for imparting an electrostatic charge to said catch head (column 4, lines 34 – 47).

Madan discloses a substrate cassette for use in a single chamber deposition system for use in an in-line multiple chamber deposition system, and for use in a circular multiple chamber or cluster tool deposition system. The system comprises of:

a camera provided in said inspection chamber, said camera mounted on a camera support, said cameras support adapted to horizontally bi-directionally move within said inspection chamber to position said camera to view interior of the at least one process chamber (column 4, lines 50- 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Langley to include a camera assembly having a camera provided in said inspection chamber said camera mounted on a camera support adapted to horizontally bi-directionally move within said inspection chamber to viewing ~~of~~ the interior of the process chambers. It would have been obvious to one of ordinary

skill in the art at the time of the invention to modify Langley by the teaching of Madan in the field of semiconductor manufacturing that semiconductor material be selectively deposited onto a substrate member. In so doing, it is know that an in-line horizontal, and in-line vertical, or a circular assembly of vacuum deposition chambers may be used wherein the substrate member is sequentially moved from one chamber to another as is needed to achieve a desired sequence of semiconductor layers on the substrate member (as suggested by Madan at column 1, lines 21- 28).

As to claim 18, see the rejection of claim 17 above.

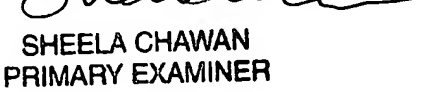
Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2624
April 21, 2007



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PRIMARY EXAMINER